

FIG. 1A

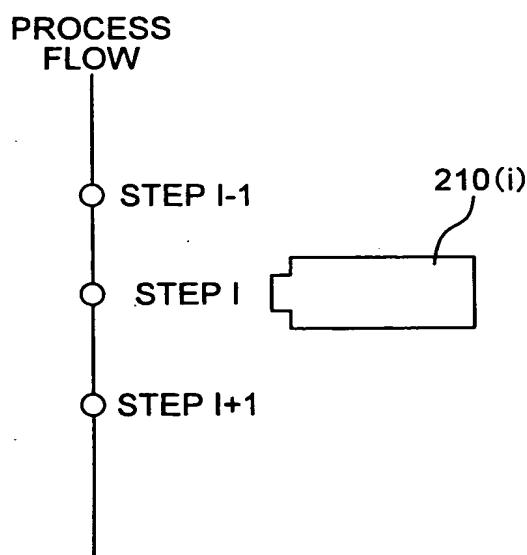


FIG. 1B

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CONTROL VARIABLE
COMPUTATION PROGRAM: α (OX001/AAA)
/ /ACQUIRE "PROCESSING TIME" AS PROCESS
MANAGING INFORMATION AND SUBSTITUTE IT FOR TEMP
TEMP=GET(PROCESSING TIME);
/ /SET THE VALUE OF TEMP FOR CONTROL VARIABLE
"TIME",AND TRANSFER IT TO THE APPARATUS
SEND (TIME ,TEMP);

FIG. 2

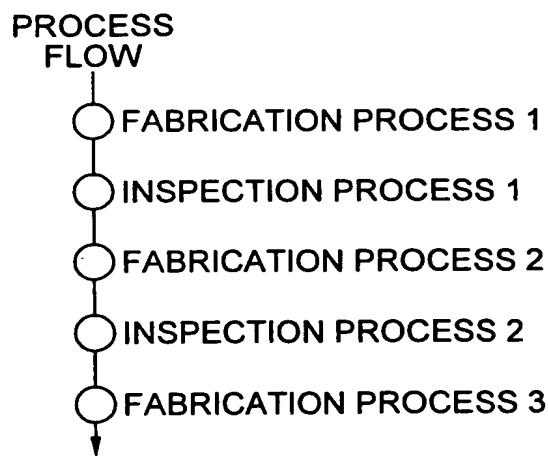


FIG. 3

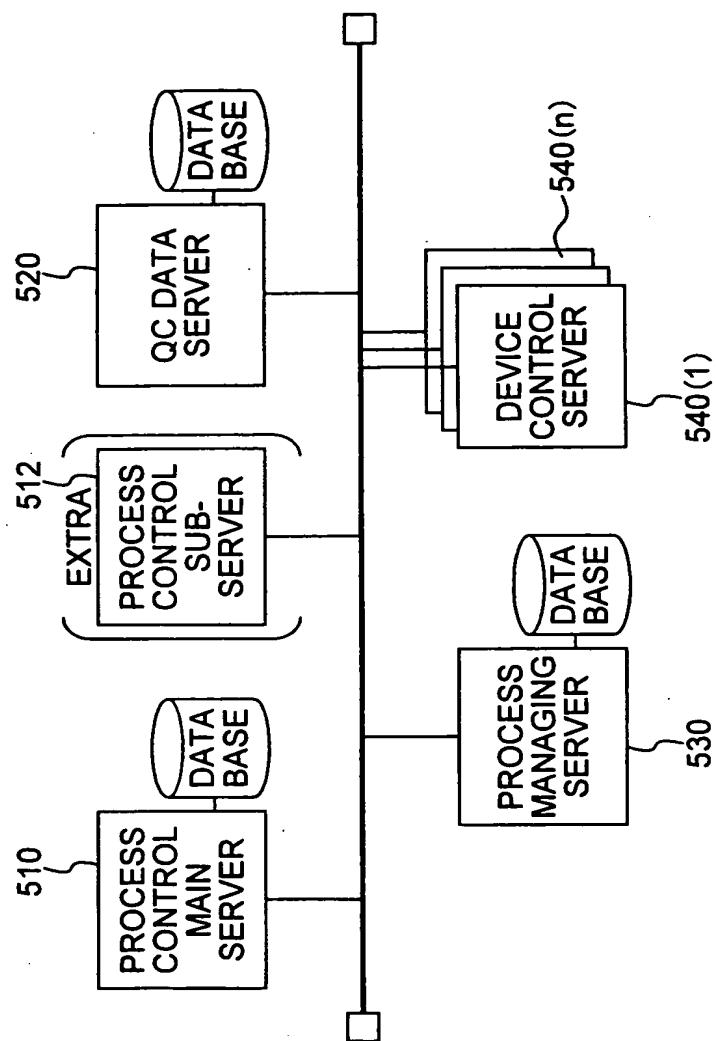


FIG. 4

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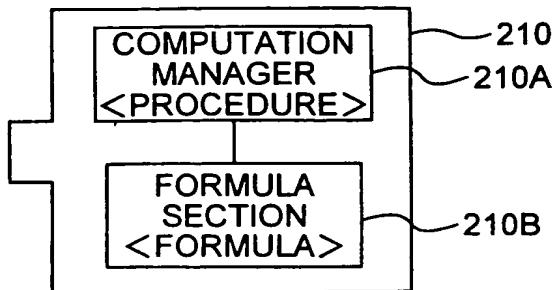


FIG. 5A

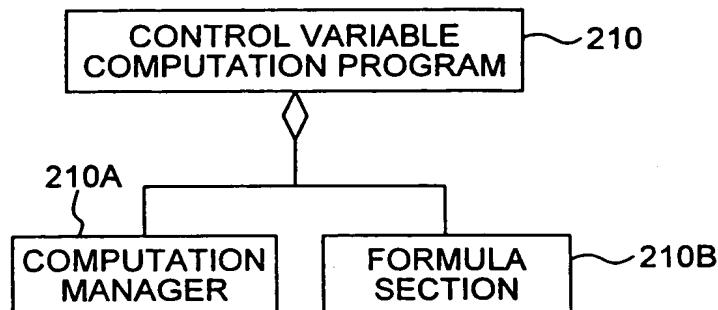


FIG. 5B

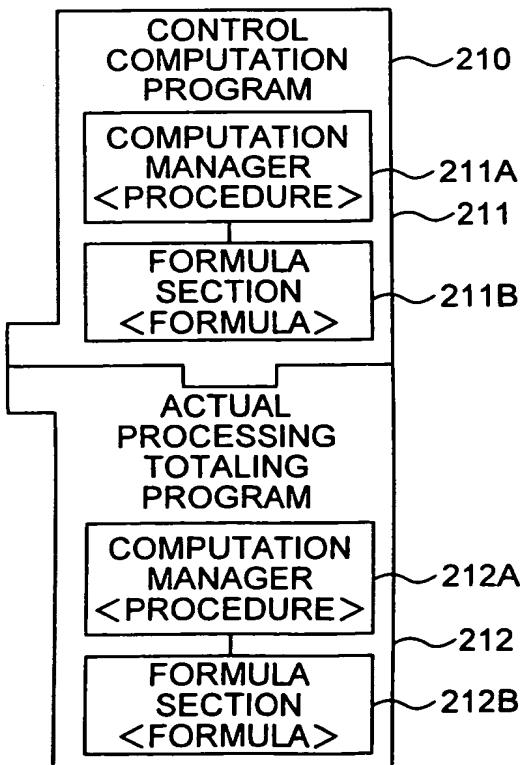


FIG. 6

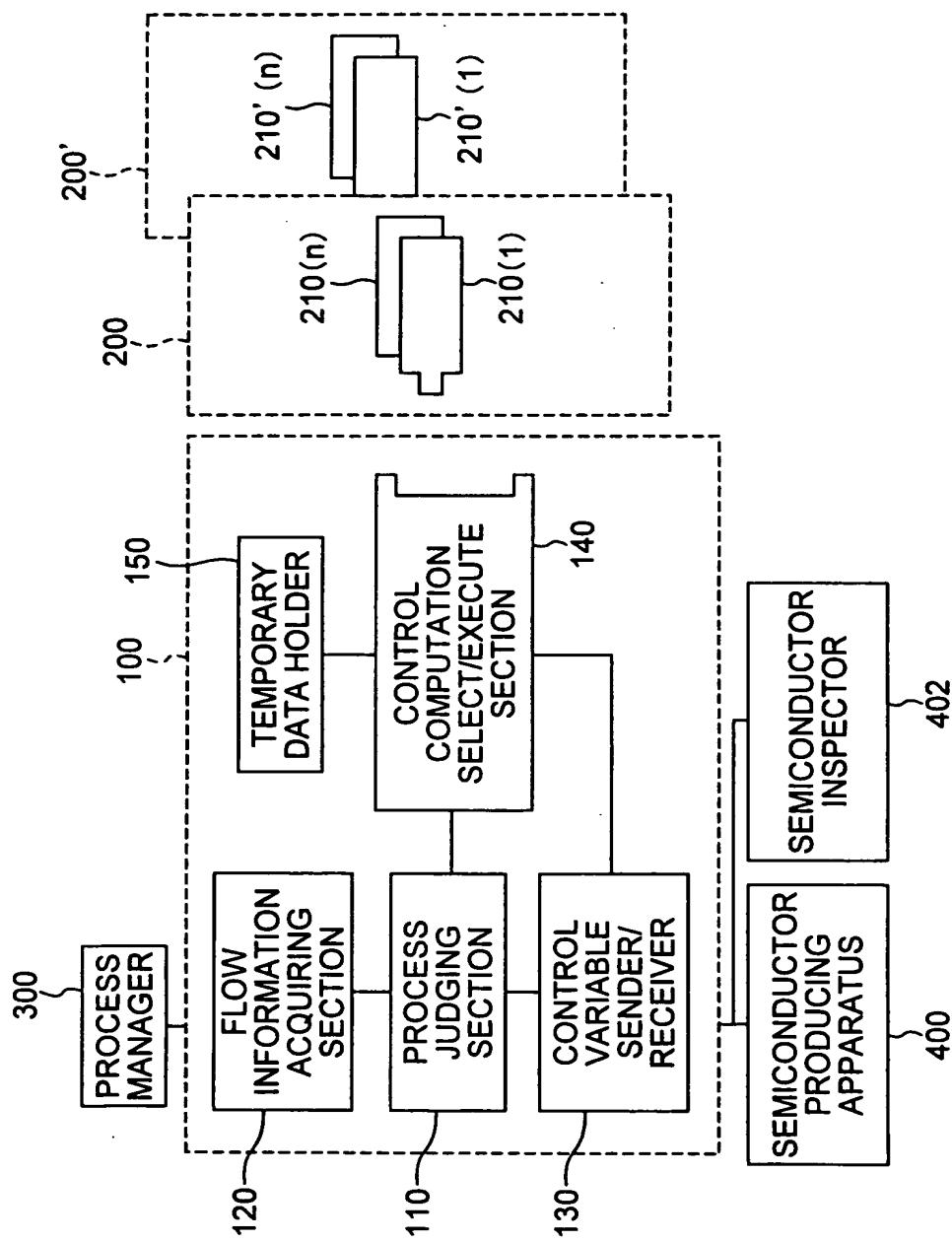


FIG. 7

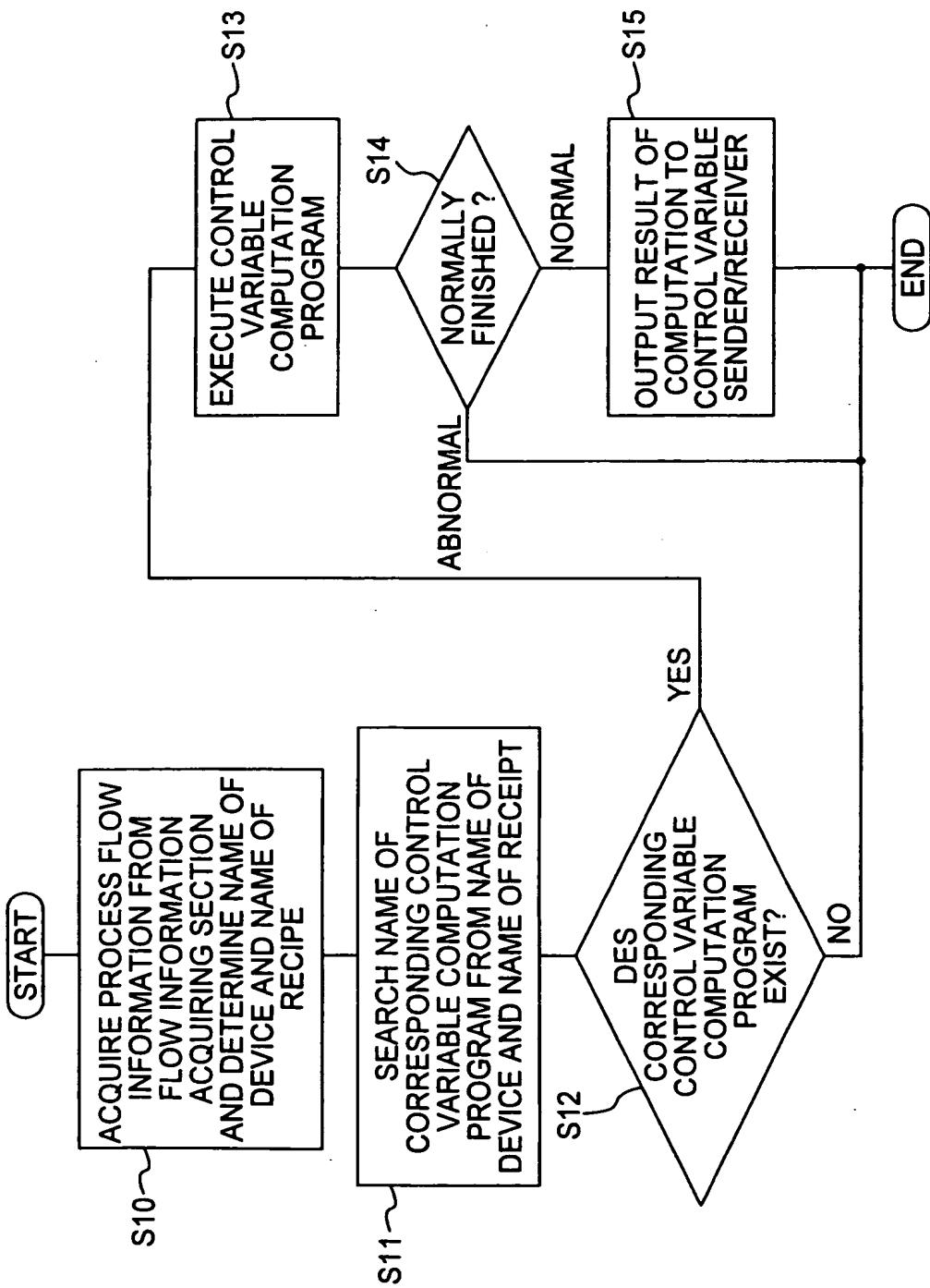


FIG. 8

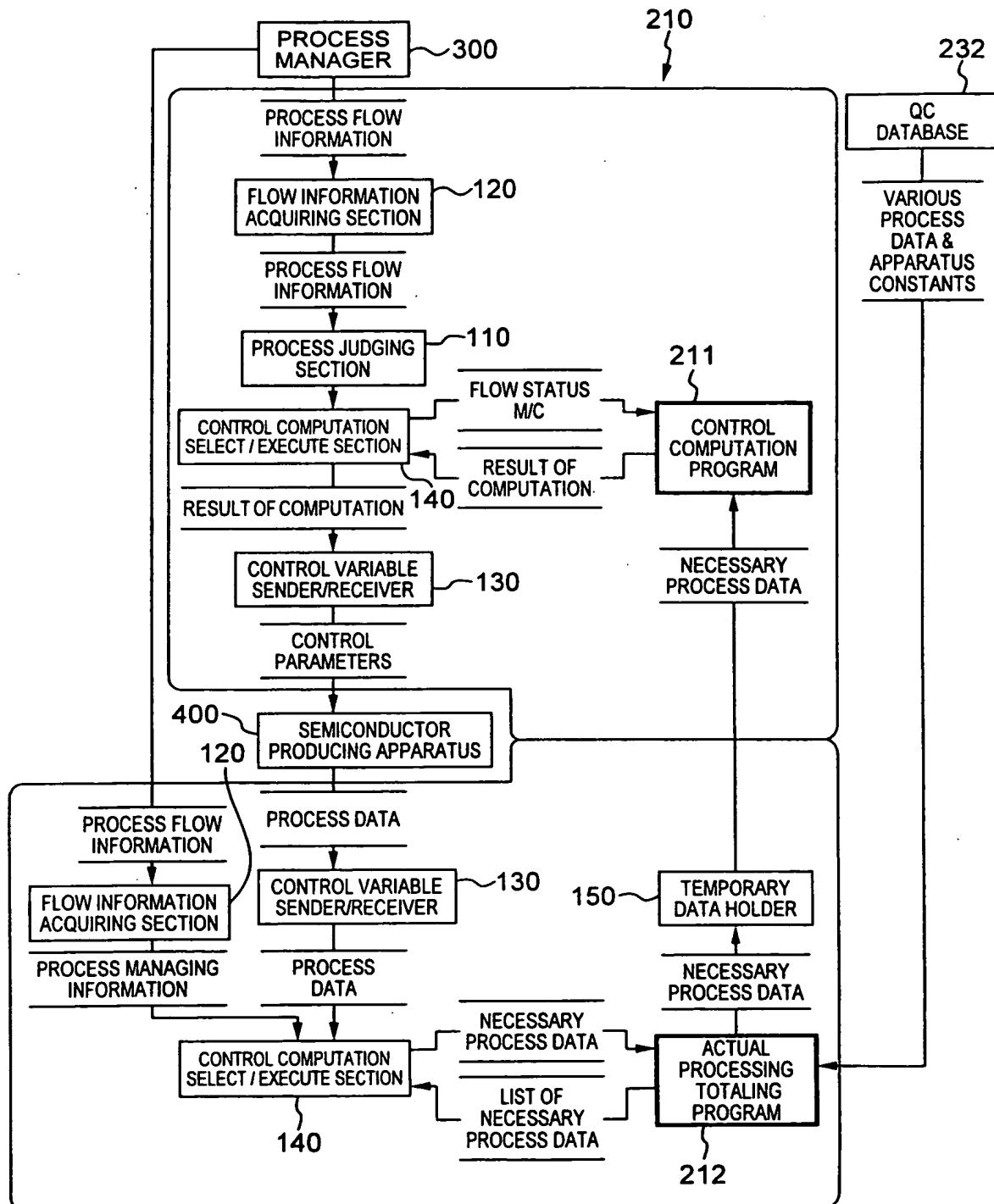
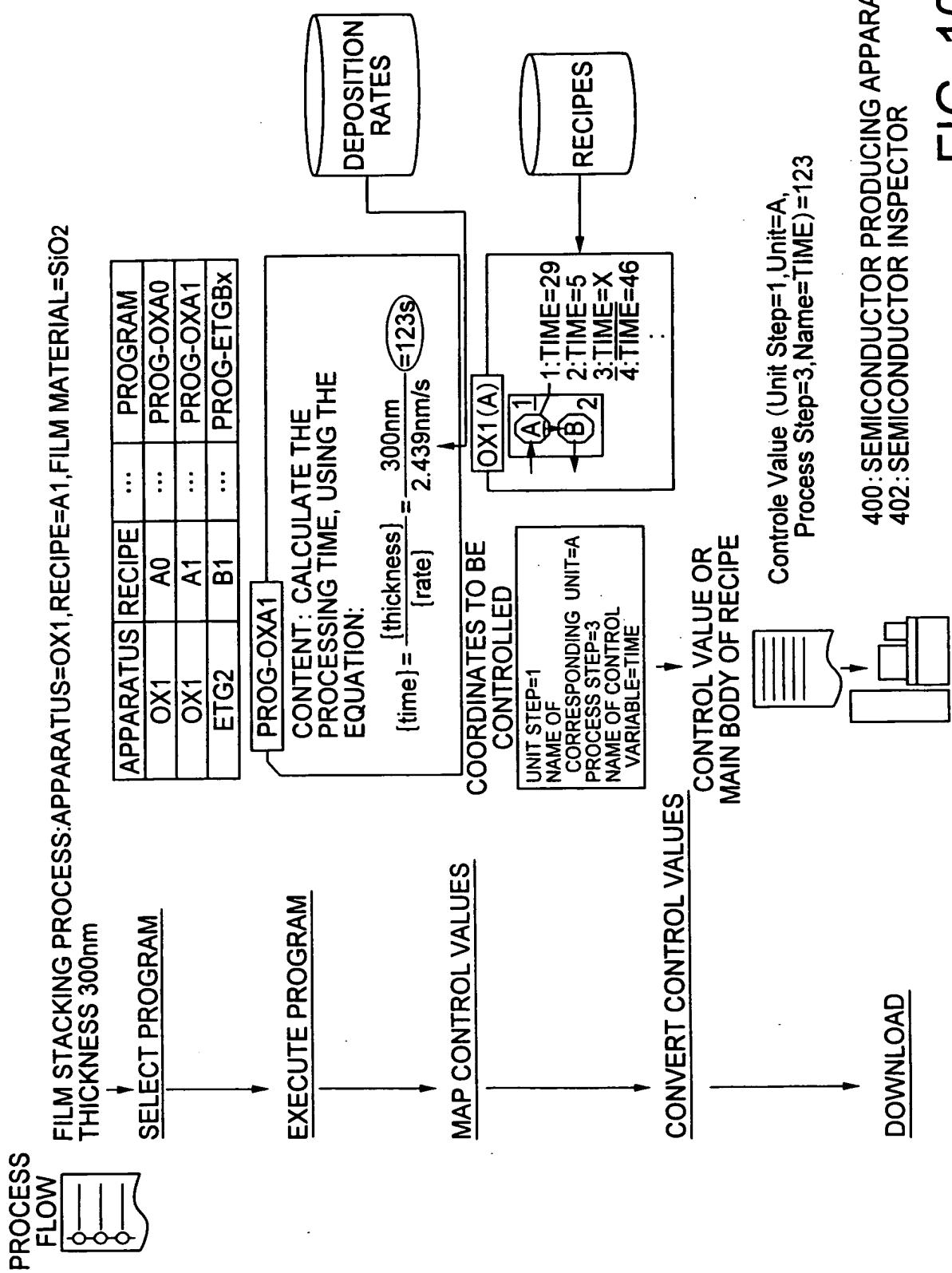


FIG. 9



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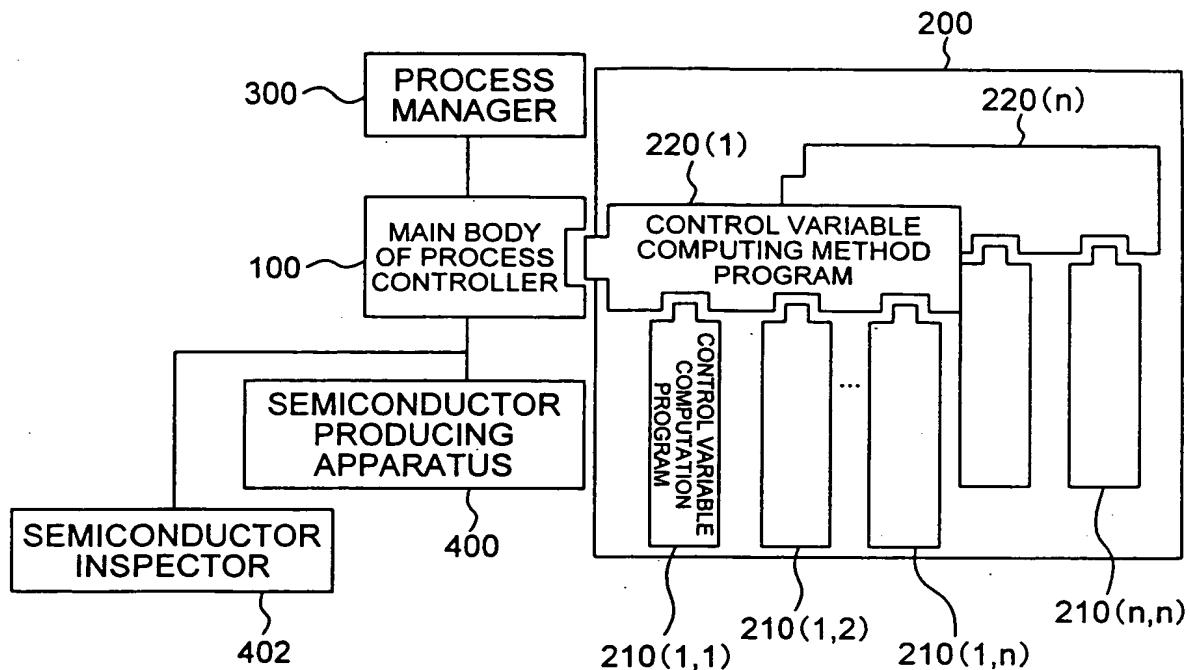


FIG. 11A

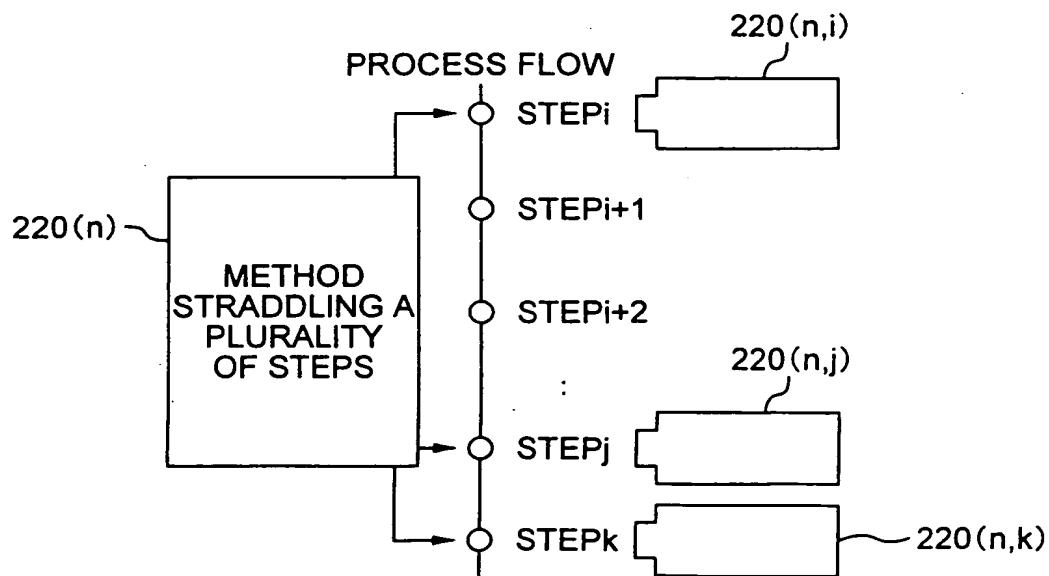


FIG. 11B

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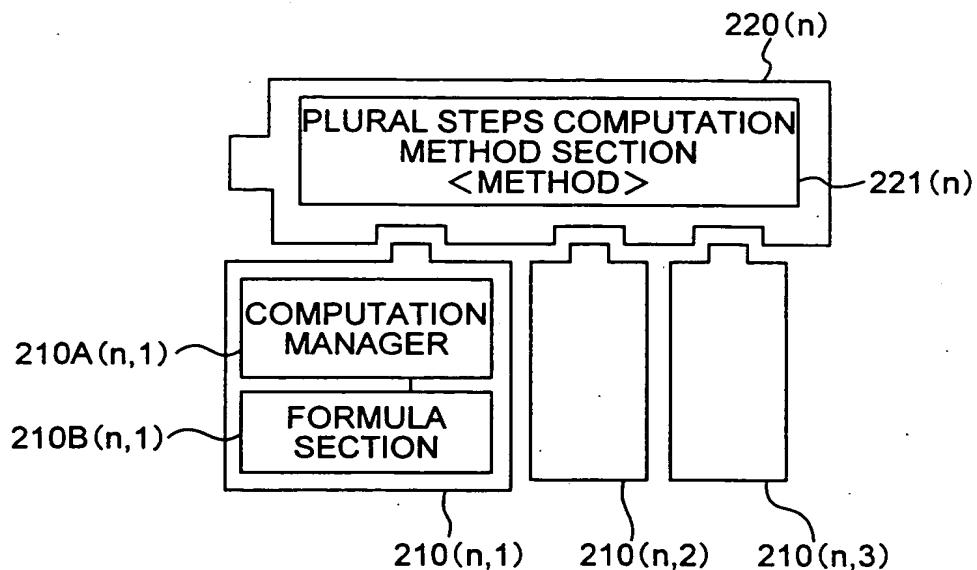


FIG. 12A

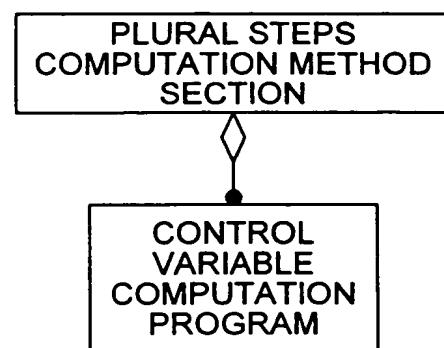
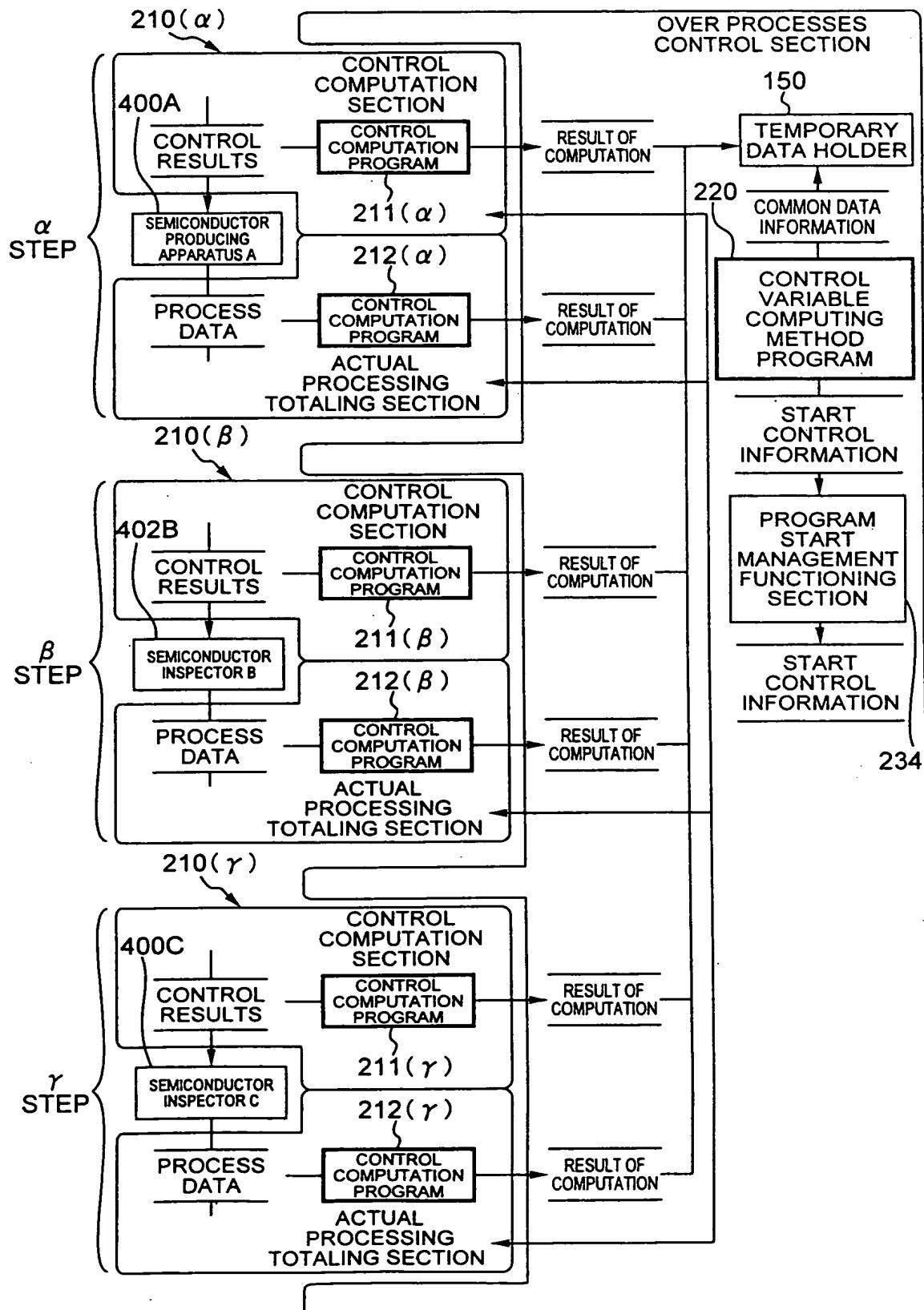


FIG. 12B

FIG. 13



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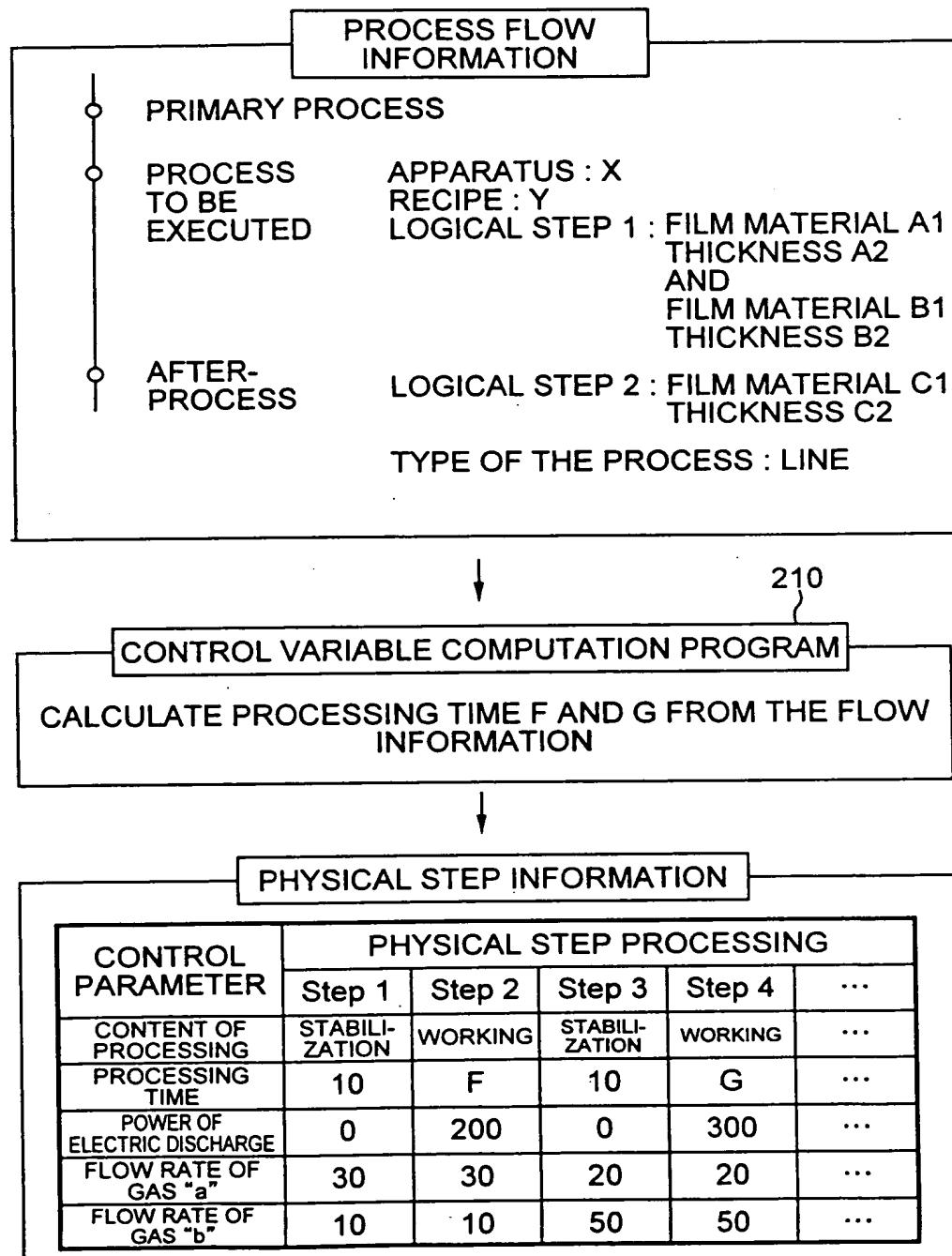


FIG. 14

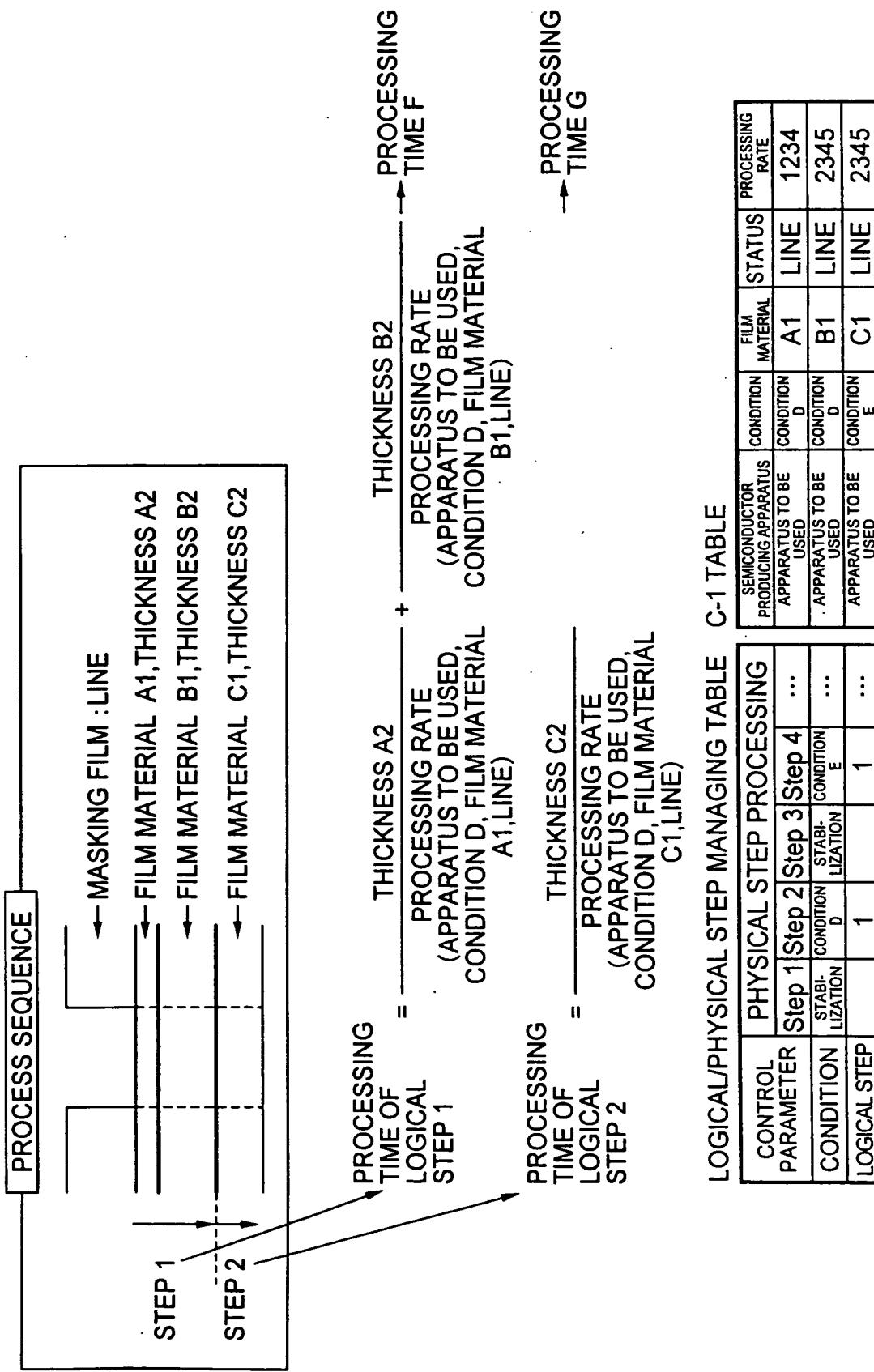


FIG. 15

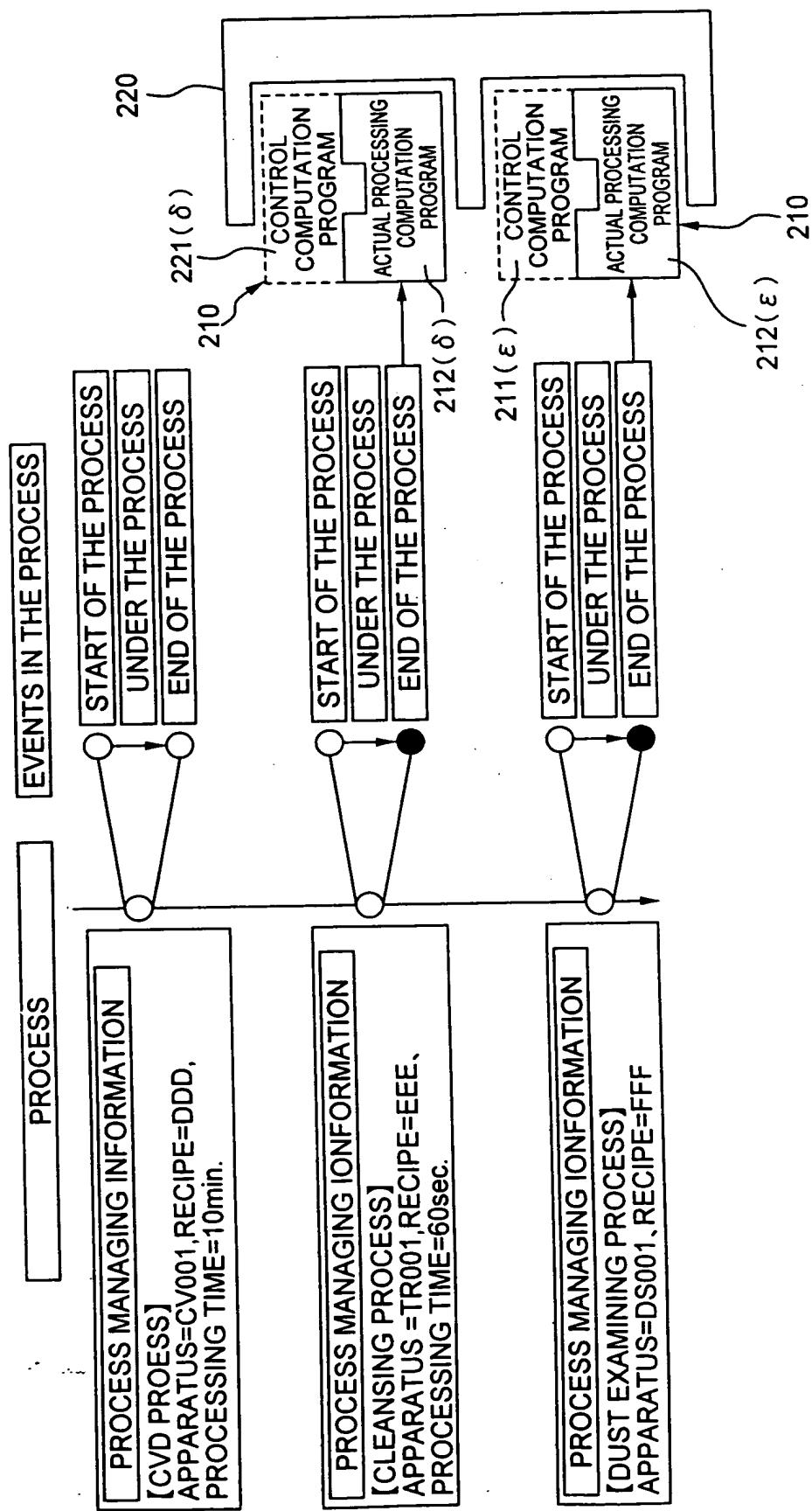


FIG. 16

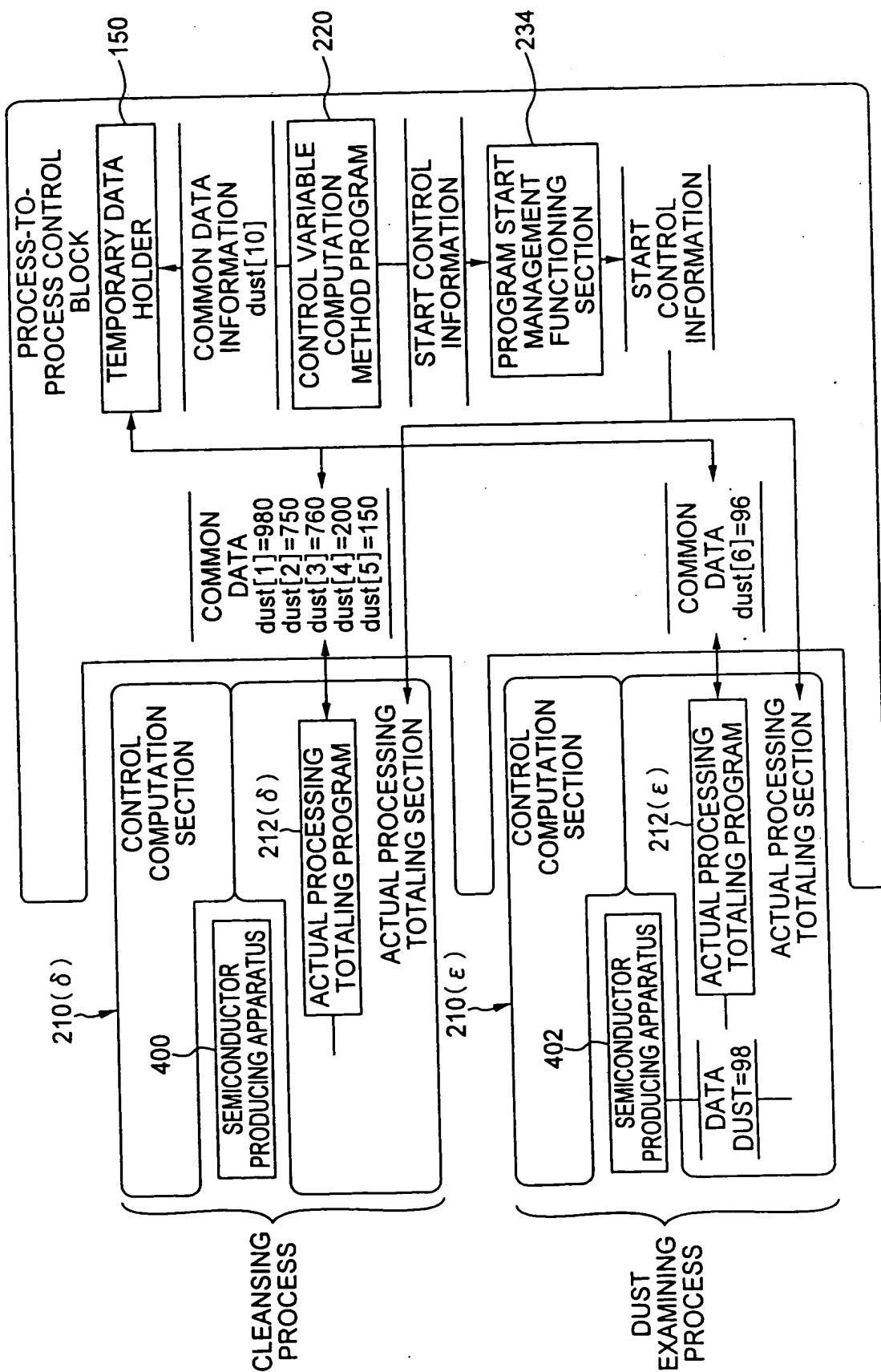


FIG. 17

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ACTUAL PROCESSING TOTALING PROGRAM δ

```
//READ VALUE INTO ARRAY TEMP [] FROM COMMON DATA
STORAGE REGION "ARRAY []"
COM_SAVE(DUST[],TEMP[]);

//STATISTICALLY JUDGE THE VALUE OF TEMP[] BY EXTERNAL
FUNCTION AND SUBSTITUTE THE RESULT FOR RETURN
return=SPC_JUDGE(temp[]);

//SEND RESULT OF JUDGEMENT TO PROCESS MANAGER TO OMIT
A STEP PM_SEND(return);
```

ACTUAL PROCESSING TOTALING PROGRAM ϵ (DS001/FFF)

```
//ACQUIRE VALUE OF "DUST" AS PROCESS DATA AND
SUBSTITUTE IT FOR TEMP
TEMP=GET (DUST)

//STORE THE VALUE OF TEMP IN COMMON DATA STORAGE
REGION "DUST[]"
COM_SAVE(dust[],temp);
```

PROCESS-TO-PROCESS CONTROL PROGRAM:B

```
/DEFINE PROGRAM FOR TOTALING ACTUAL PROCESSING OF
CLEANSING PROCESS
PROGRAM_DEFINE( $\delta$ );

//DEFINE PROGRAM FOR TOTALING ACTUAL PROCESSING
OF DUST INSPECTION PROCESS
PROGRAM_DEFINE( $\epsilon$ );

//DEFINE "ARRAY DUST[]" IN COMMON DATA STORAGE
REGION
COM_DEFINE(dust[]);
```

FIG. 18

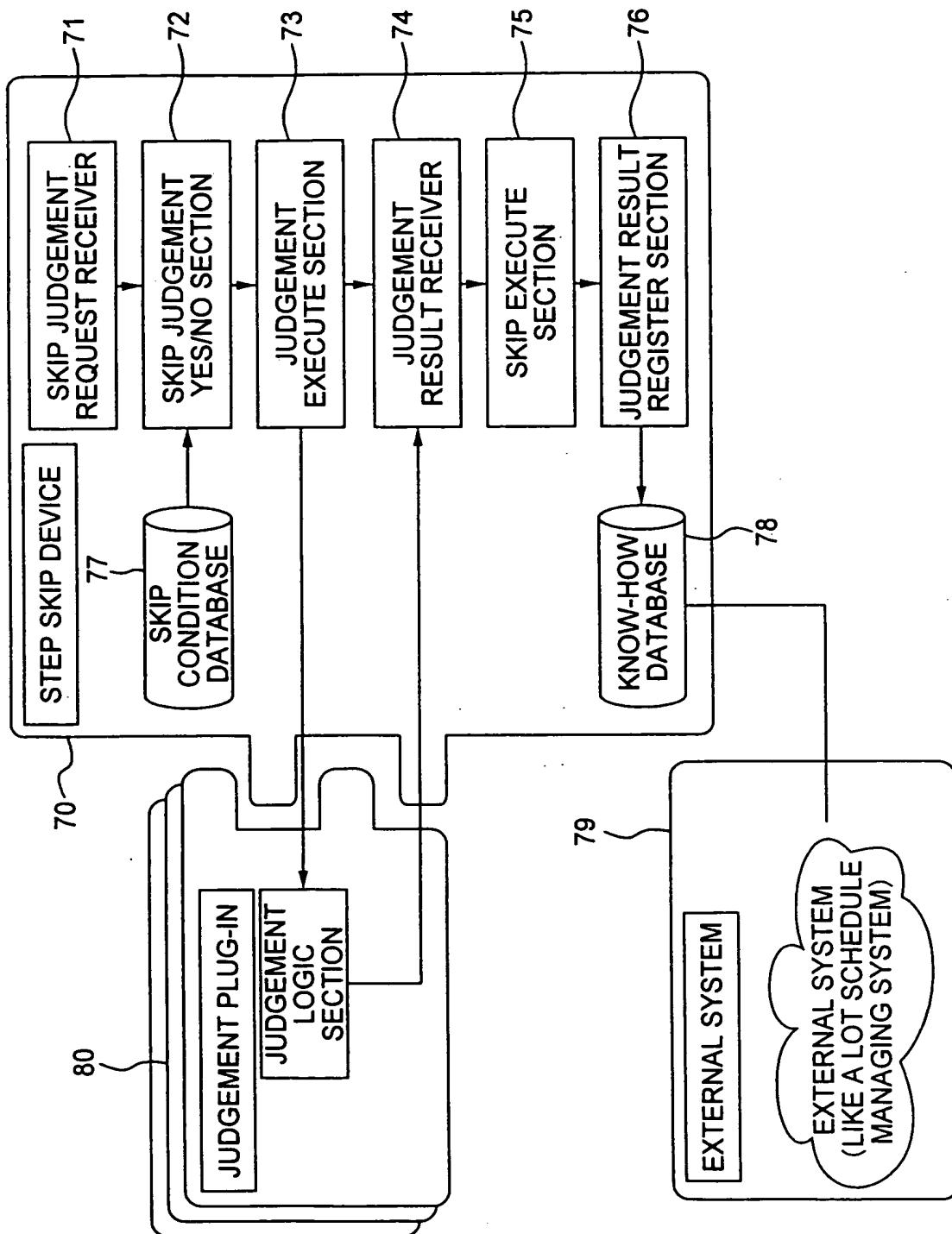


FIG. 19

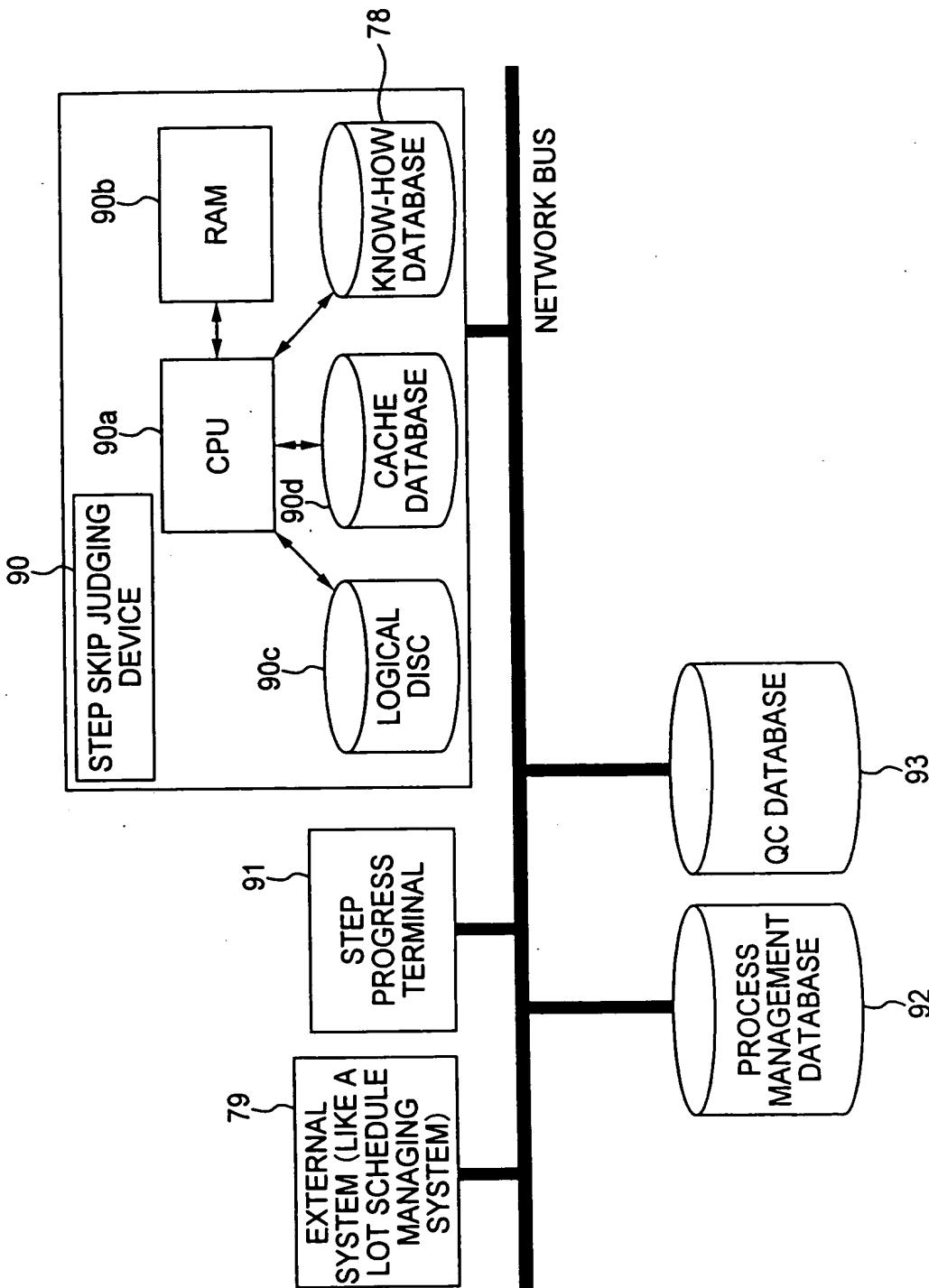


FIG. 20

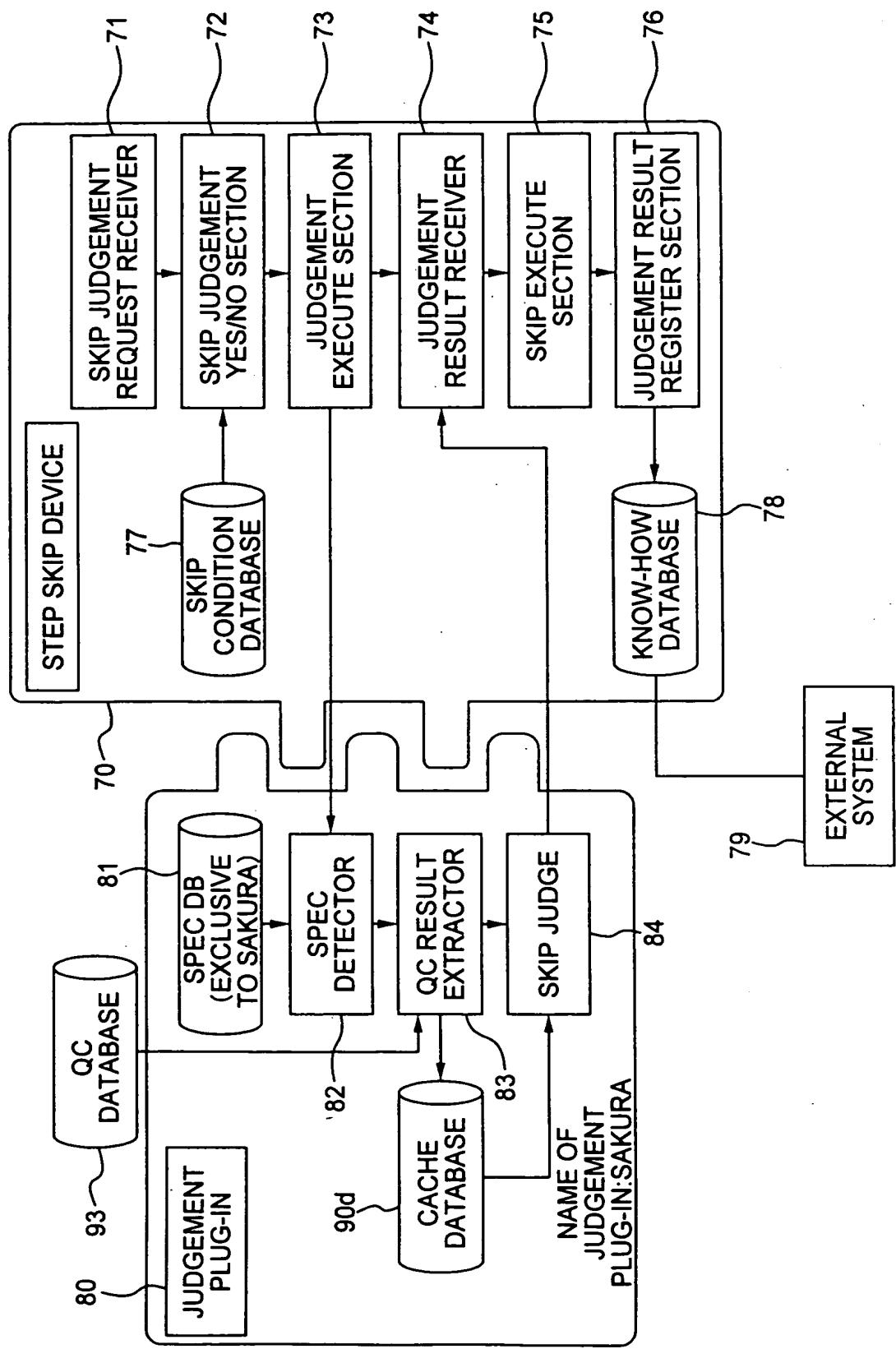


FIG. 21

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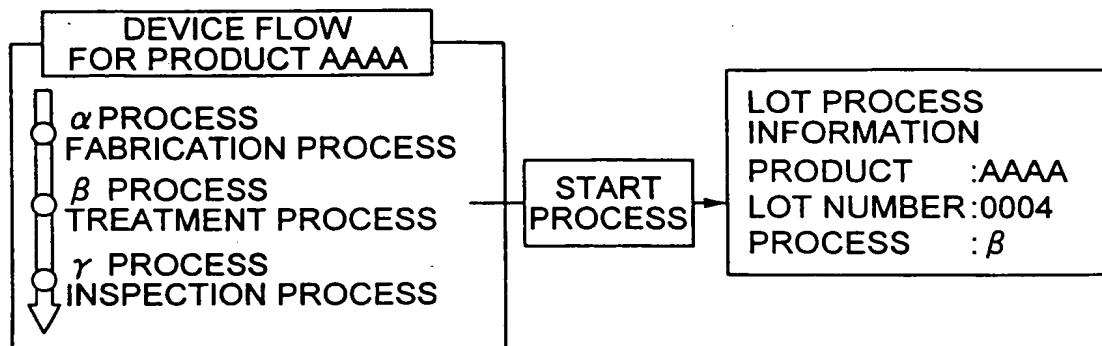


FIG. 22

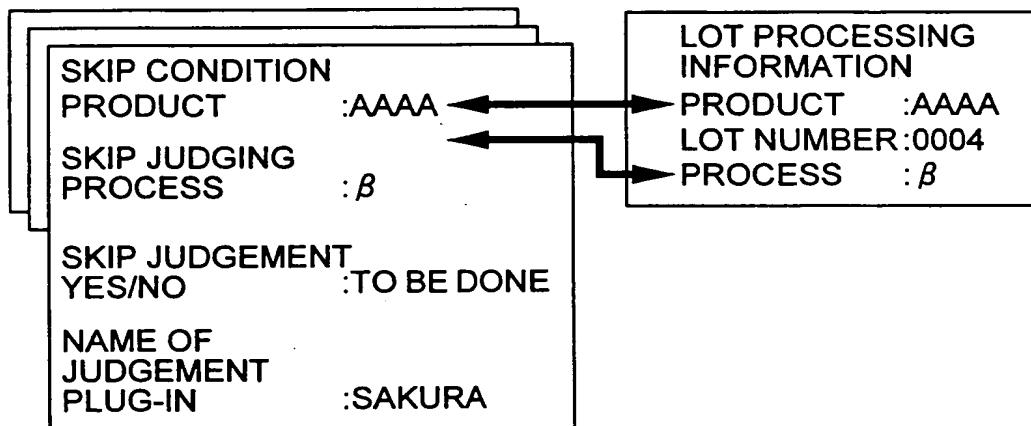


FIG. 23

JUDGEMENT PLUG-IN :SAKURA
INPUT :A=PRODUCT,B=SKIP JUDGING PROCESS
OUTPUT :R=RESULT OF JUDGEMENT
LOGIC :ACQUIRE TYPE OF JUDGEMENT QC STEP C,
DATA D TO BE JUDGED, AND SPECS E,F & G
FOR PRODUCT A AND SKIP JUDGING
PROCESS B FROM SPEC DB EXCLUSIVE TO
JUDGEMENT PLUG-IN SAKURA, AND IF
F<SPEC D<G FOR E CONSECUTIVE TIMES,
SUBSTITUTE "EXECUTE STEP SKIP" FOR R.

FIG. 24

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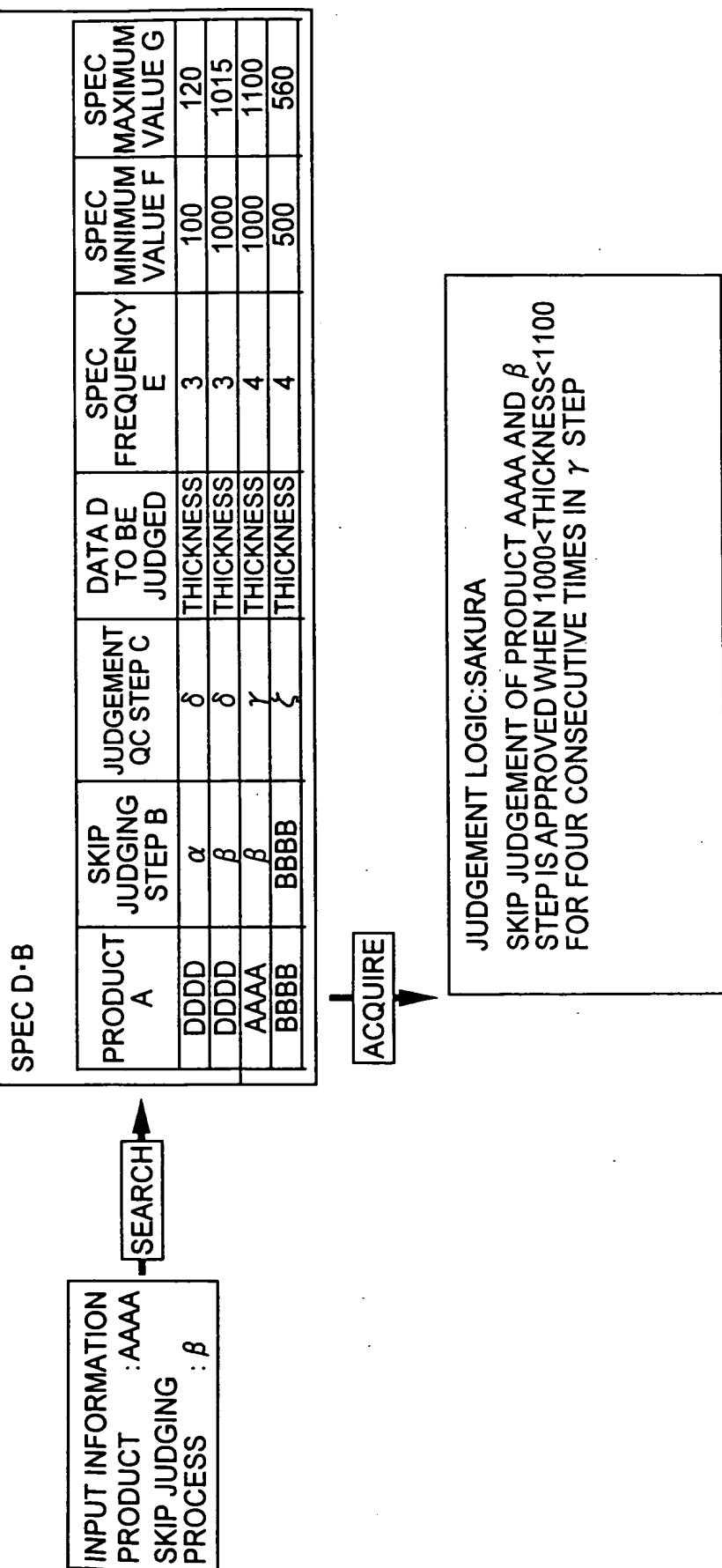


FIG. 25

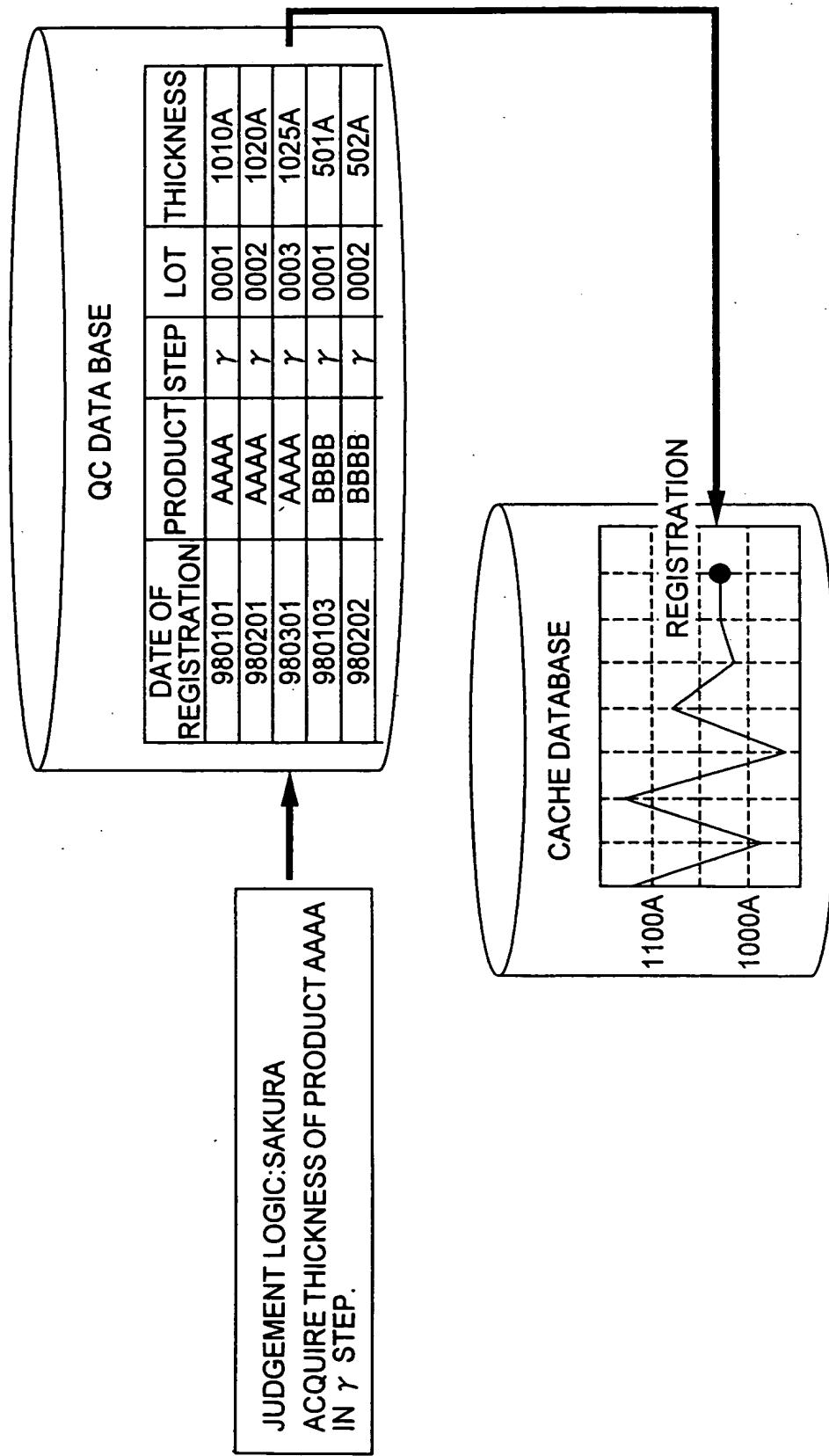


FIG. 26

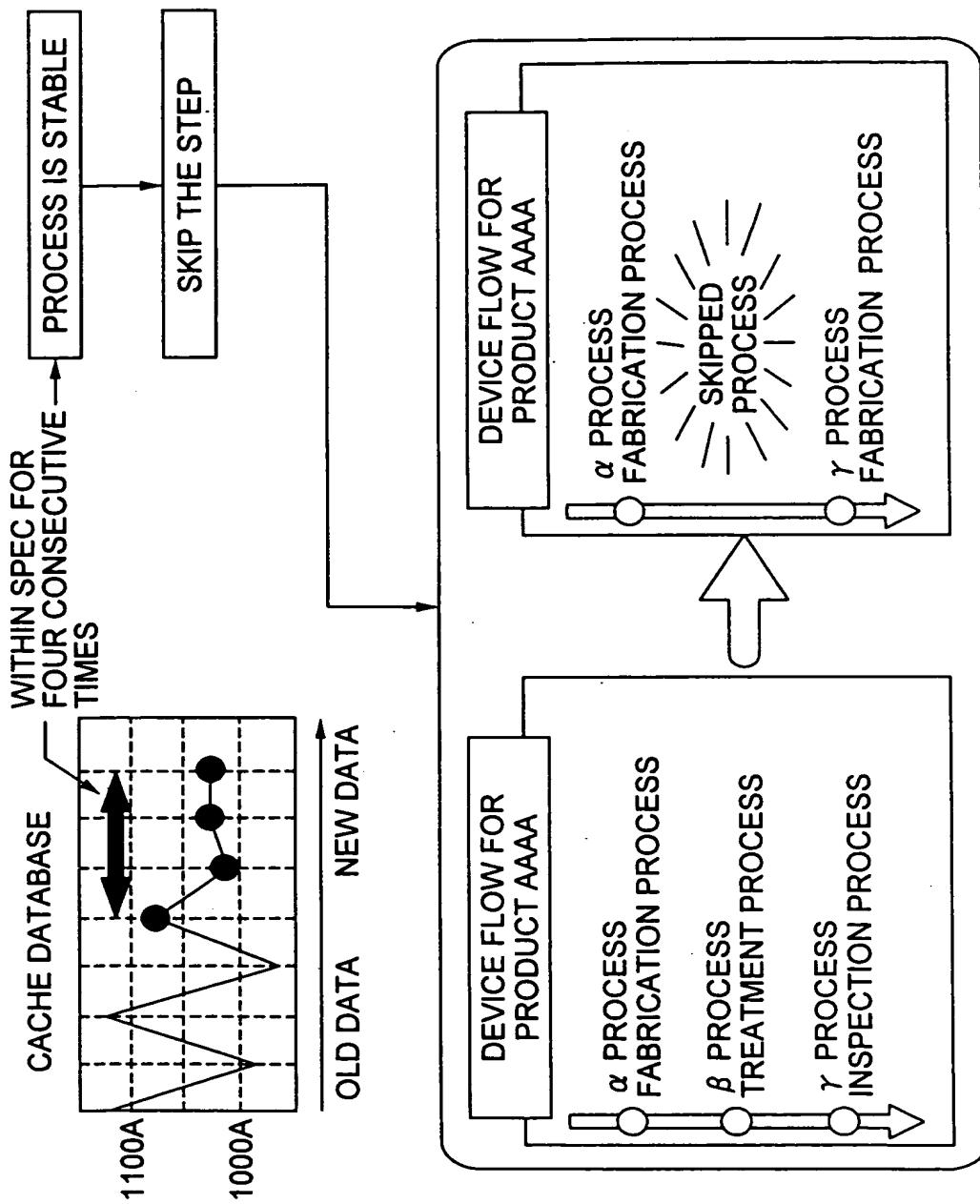


FIG. 27

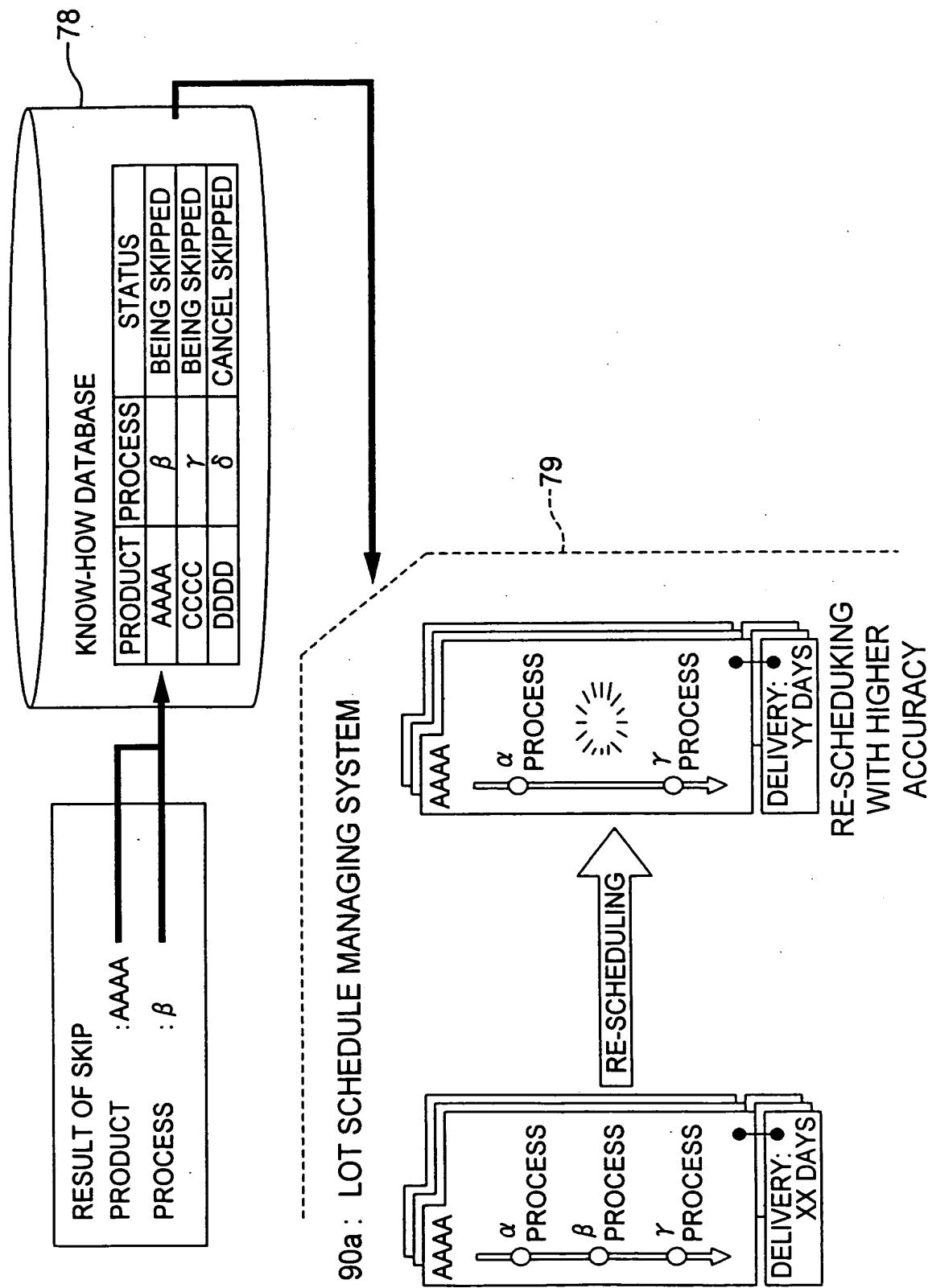


FIG. 28

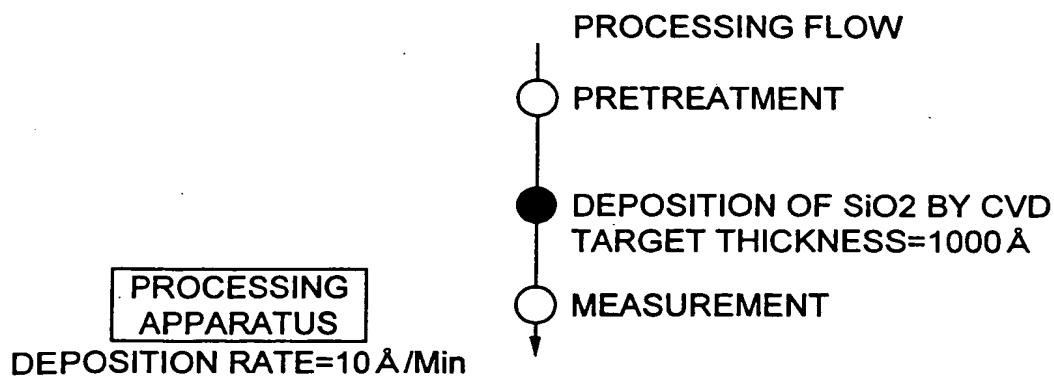


FIG. 29 PRIOR ART

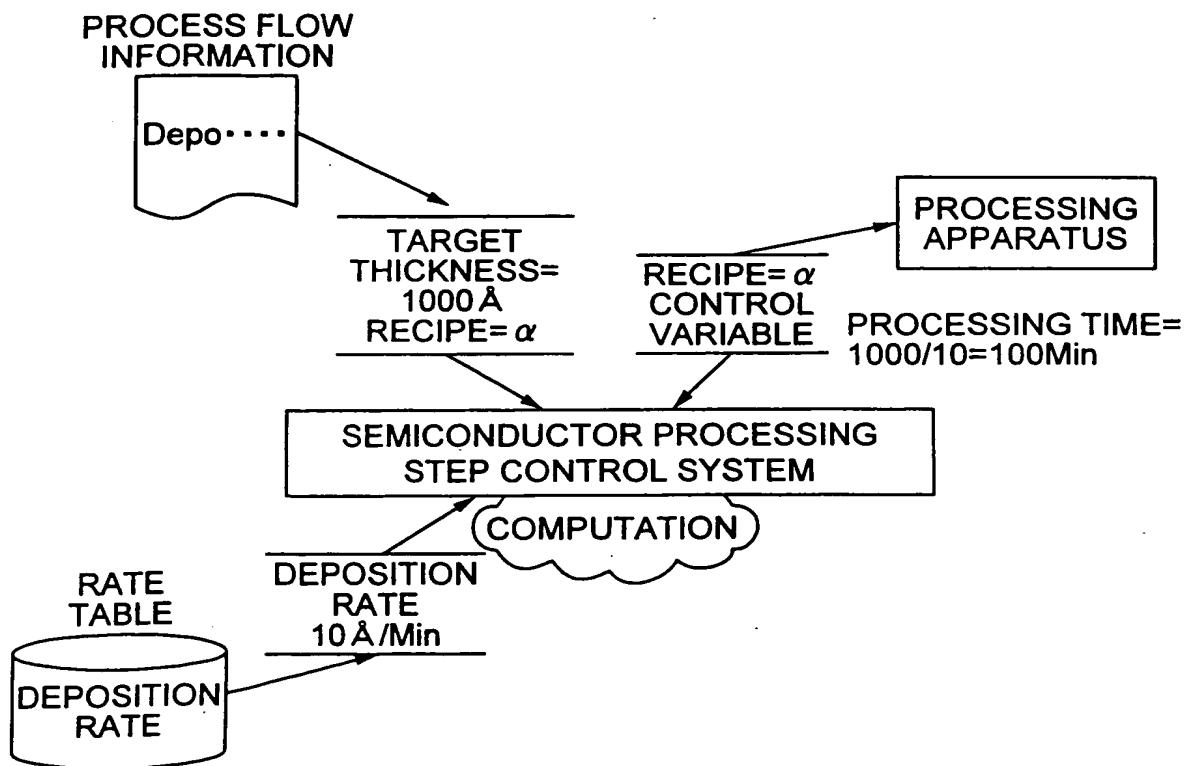


FIG. 30 PRIOR ART

(1) EXAMPLE OF DEPOSITION APPARATUS

PROCESS SPECIFICATION PARAMETER

FILM=SiO2-POLY-SiN-SiO2
 THICK=500A-2000A-1000A-3000A
 RECIPE=A1

SiO2 3000A
Si3N4 1000A
PolySi 2000A
SiO2 500A

RECIPE MANAGING TABLE (A1)

STEP	1	2	3	4
CONDITION	Depo1	Depo2	Depo3	Depo4
Rate(A/min)	1234.5	2345.6	3456.7	4567.8

RATE TABLE

CONDITION	Depo1	Depo2	Depo3	Depo4
Rate(A/min)	1234.5	2345.6	3456.7	4567.8

CONTROL VARIABLE
 OUTPUT RESULT

Thickness
 \downarrow
 Time = $\frac{\text{Thickness}}{\text{DepoRate(Condition)}}$

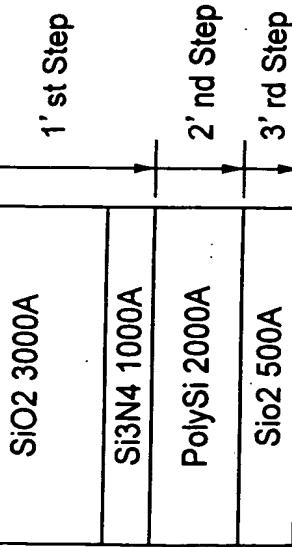
STEP	1	2	3	4
TIME (sec)	500/1234.5*60 =24	2000/2345.6*60 =51	1000/3456.7*60 =17	3000/4567.8*60 =39

FIG. 31 PRIOR ART

(2) EXAMPLE OF ETCHING APPARATUS

PROCESS SPECIFICATION PARAMETER

STR=SiO2[3000]+SiN[1000]-POLY[2000]-SiO2[500]
 TIME=JUST(30%)-50S-JUST(0%)+10S
 RECIPE=B1



RECIPE MANAGING TABLE (B1)

STEP	1	2	3
CONDITION	Etg1	Etg2	Etg3
FILE MATERIAL	SiO2	SiN	POLY
Rate (A/min)	1234.5	2345.6	3456.7

RATE TABLE

CONDITION	Etg1	Etg2	Etg3
FILE MATERIAL	SiO2	SiN	POLY
Rate (A/min)	1234.5	2345.6	3456.7

$$\text{Time} = \sum \left(\frac{\text{Thickness(Film)}}{\text{EtchRte(Film, Condition)}} \right) (1+\text{Over\%}) + \text{Abs Times}$$

CONTROL VARIABLE OUTPUT RESULT

STEP	1	2	3
TIME(sec)	$(3000/1234.5+1000/2345.6)*1.3*60 = 223$	DESIGNATED TIME=51	$(500/4567.8)*1.0*60+10 = 17$

FIG. 32 PRIOR ART

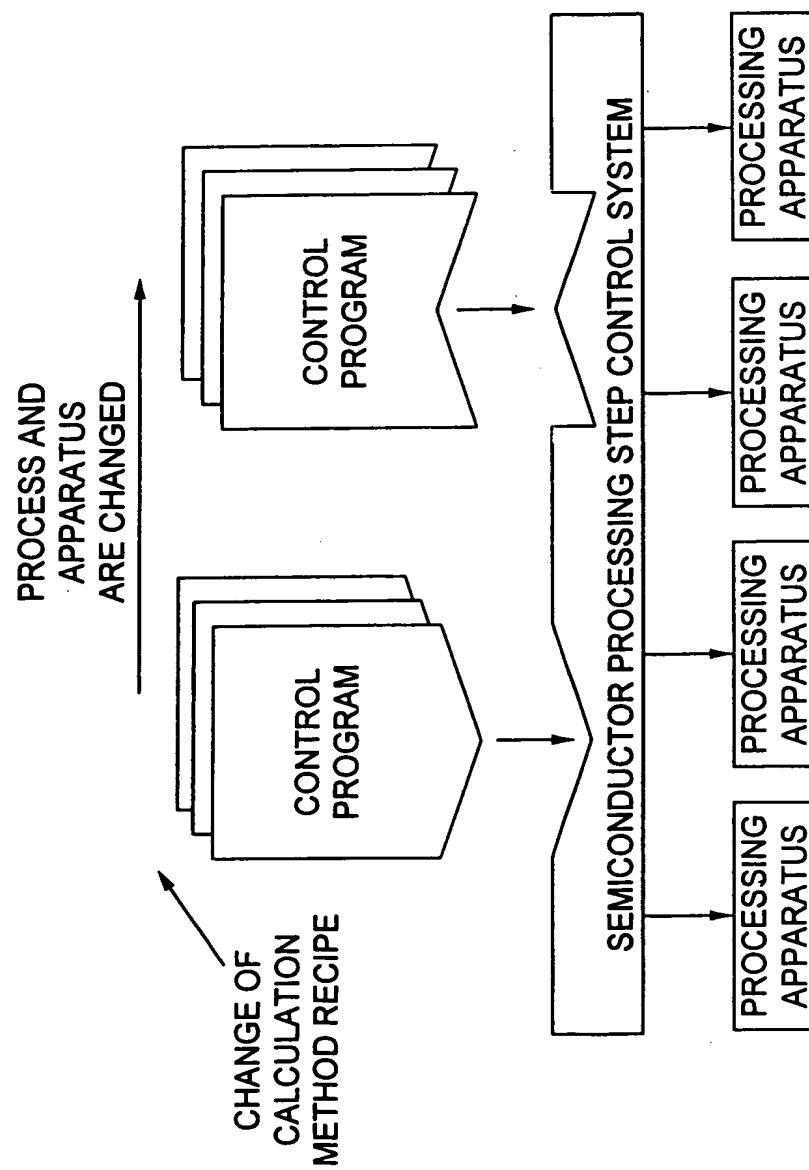


FIG. 33 PRIOR ART